IN THE CLAIMS

What is claimed is:

1. A magnetic head comprising:

a read sensor including:

a free layer;

a spacer layer;

a plurality of self-pinned layers, said self-pinned layers including interleaved layers of ferromagnetic material and non-magnetic metal.

2. The magnetic head of claim 1, wherein:

said plurality of self-pinned layers includes AP1 and AP2, where AP1 includes an odd number of layers of ferromagnetic material.

3. The magnetic head of claim 3, wherein:

said AP1 and said AP2 together have a net magnetic moment dM=0.

4. The magnetic head of claim 3, wherein:

said dM=0 corresponds to a dT less than 5×10^{-10} meters, where magnetic thickness T = M x t, and M equals magnetization, t equals thickness of material, and dT is the differential in the layer thicknesses.

5. The magnetic head of claim 1, wherein:

said plurality of self-pinned layers has Hk > 200 Oe.

6. The magnetic head of claim 1, wherein:

said plurality of self-pinned layers is pinned by magnetostrictive anisotropy.

7. The magnetic head of claim 1, wherein:

said ferromagnetic material of said plurality of self-pinned layers is chosen from a group consisting of CoFe, CoFe/NiFe, and Fe.

8. The magnetic head of claim 1, wherein:

said non-magnetic metal of said plurality of self-pinned layers is chosen from a group consisting of Ru, Cr, Ir, Cu, Rh, and Re.

9. The magnetic head of claim 1, wherein:

said read sensor is of Current Perpendicular to the Plane (CPP) configuration.

10. A disk drive comprising:

at least one hard disk;

at least one magnetic head adapted to fly over said hard disk for writing data on said hard disk, and having an air bearing surface, said magnetic head including:

a read sensor including:

a free layer;

a spacer layer;

a plurality of self-pinned layers, said self-pinned layers including interleaved layers of ferromagnetic material and non-magnetic metal.

11. The disk drive of claim 10, wherein:

said plurality of self-pinned layers includes AP1 and AP2, where AP1 includes an odd number of layers of ferromagnetic material.

12. The disk drive of claim 11, wherein:

said AP1 and said AP2 have a net magnetic moment dM=0.

13. The disk drive of claim 12, wherein:

said dM=0 corresponds to a dT less than 5×10^{-10} meters, where magnetic thickness T = M x t, and M equals magnetization, t equals thickness of material, and dT is the differential in the layer thicknesses.

14. The disk drive of claim 10, wherein:

said plurality of self-pinned layers has Hk > 200 Oe.

15. The disk drive of claim 10, wherein:

said plurality of self-pinned layers is pinned by magnetostrictive anisotropy.

16. The disk drive of claim 10, wherein:

said ferromagnetic material of said plurality of self-pinned layers is chosen from a group consisting of CoFe, CoFe/NiFe, and Fe.

17. The disk drive of claim 10, wherein:

said non-magnetic metal of said plurality of self-pinned layers is chosen from a group consisting of Ru, Cr, Ir, Cu, Rh, and Re.

18. The disk drive of claim 10, wherein:

said read sensor is of Current Perpendicular to the Plane (CPP) configuration.

19. A method of fabrication of a read head sensor of a magnetic head, comprising:

A) fabricating a plurality of self-pinned layers including interleaved layers of ferromagnetic material and non-magnetic metal;

B) fabricating a spacer layer above said plurality of self-pinned layers; and

C) fabricating a free layer on said spacer layer.

20. The method of fabrication of claim 19, wherein:

said plurality of self-pinned layers of A have dM=0.

21. The method of fabrication of claim 20, wherein:

said dM=0 corresponds to a dT less than 5×10^{-10} meters, where magnetic thickness T = M x t, and M equals magnetization, t equals thickness of material, and dT is the differential in the layer thicknesses.

22. The method of fabrication of claim 19, wherein:

said plurality of self-pinned layers has Hk > 200 Oe.

23. The method of fabrication of claim 19, wherein:

said plurality of self-pinned layers is pinned by magnetostrictive anisotropy.